


**STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION**

FROM:  Matt Urban
Wetlands Program Manager

DATE: August 26, 2016

AT (OFFICE): Department of
Transportation

SUBJECT Dredge & Fill Application
Gorham, 40826

Bureau of
Environment

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Maintenance for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on NH Route 16 over an un-named brook in the Town of Gorham.

This project was reviewed at the February 17th Natural Resource Agency Coordination Meeting. The minutes from that meeting are included within this application package and can also be reviewed on the Departments website via the following link:
<http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm>

This project does not require mitigation.

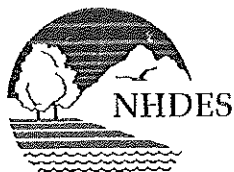
A payment voucher has been processed for this application (Voucher #454038) in the amount of \$852.20.

The lead people to contact for this project are Steve Johnson, Assistant Administrator, Bureau of Bridge Maintenance (271-3668 or sjohnson@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

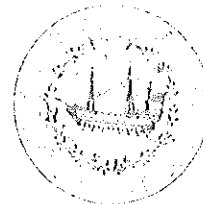
MRU:mr
Enclosures

cc:
BOE Original
Town of Gorham (4 copies via certified mail)
Edna Feighner, NH Division of Historic Resources
Carol Henderson, NH Fish & Game, (via electronic copy)
Maria Tur, US Fish & Wildlife, (via electronic copy)
Mark Kern, US Environmental Protection Agency, (via electronic copy)
Michael Hicks, US Army Corp of Engineers, (via electronic copy)



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU

29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
<http://des.nh.gov/organization/divisions/water/wetlands>



PERMIT APPLICATION

1. REVIEW TIME:

Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact)

☐ Expedited Review (Minimum Impact)

2. PROJECT LOCATION:

Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: NH Rte. 16 over Unnamed Brook

TOWN/CITY: Gorham

TAX MAP:

BLOCK:

LOT:

UNIT:

USGS TOPO MAP WATERBODY NAME: Unnamed Brook

☐ NA

STREAM WATERSHED SIZE: 1.00 mi²

☐ NA

LOCATION COORDINATES (If known): 044°22'32.21" 071°10'25.98"

☒ Latitude/Longitude

☐ UTM ☐ State Plane

3. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Rehabilitate the bridge that carries Rte. 16 over an unnamed brook (098/071). Existing structure is a concrete slab bridge that has a 14' span and 32'-9" deck width. The existing deck and substructure are in deteriorated condition. Proposed work consists of the following: install temporary scaffolding and sandbags, widen and repair the existing substructure, replace the deck, install fish weir and place riprap.

4. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

5. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB 16 - 0288

b. ☐ Designated River the project is in ¼ miles of: _____; and
date a copy of the application was sent to Local River Advisory Committee: Month: ____ Day: ____ Year: ____

☒ NA

6. APPLICANT INFORMATION (Desired permit holder)LAST NAME, FIRST NAME, M.I.: **Johnson, Steve W**TRUST / COMPANY NAME: **NH Dept. of Transportation**MAILING ADDRESS: **7 Hazen Drive**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03302**EMAIL or FAX: **sjohnson@dot.state.nh.us**PHONE: **603 271 3667**ELECTRONIC COMMUNICATION: By initialing here: SWJ, I hereby authorize DES to communicate all matters relative to this application electronically**7. PROPERTY OWNER INFORMATION (If different than applicant)**

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

8. AUTHORIZED AGENT INFORMATIONLAST NAME, FIRST NAME, M.I.: **Weatherbee, Anthony N**COMPANY NAME: **NH Dept. of Transportation**MAILING ADDRESS: **7 Hazen Drive**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03302**EMAIL or FAX: **aweatherbee@dot.state.nh.us**PHONE: **603-271-3667**ELECTRONIC COMMUNICATION: By initialing here ANW, I hereby authorize DES to communicate all matters relative to this application electronically**9. PROPERTY OWNER SIGNATURE:**

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a copy of the application materials to the NH State Historic Preservation Officer.
8. I authorize DES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of DES correspondence. DES will not forward returned mail.



Property Owner Signature

Steve W. Johnson

Print name legibly

8/16/2016


Date

MUNICIPAL SIGNATURES

10. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.


		
Authorized Commission Signature	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. The Conservation Commission signature should be obtained prior to the submittal of the original application and four copies to the town/city clerk for mailing to the DES.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

11. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 1991), I hereby certify that the applicant has filed five application forms, five detailed plans, and five USGS location maps with the town/city indicated below and I have received and retained certified postal receipts (or copies) for all abutters identified by the applicant.

			
Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3, I(d):

1. For applications where "Expedited Review" is checked on page 1, accept the application for mailing only if the Conservation Commission signature has been sought;
2. Collect the postal receipts demonstrating that all abutters and the Local Advisory Committee were sent proper notice;
3. Collect any administrative fees, not to exceed \$10 plus the cost of postage by certified mail (RSA 482-A:3, I).
4. IMMEDIATELY sign the original application and four copies in the signature space provided above;
5. Retain one copy of the application form, one complete set of attachments and the postal receipts demonstrating that all abutters and the Local River Advisory Committee were notified and make them reasonably accessible to the public;
6. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board in accordance with RSA 482-A:3, I; and
7. IMMEDIATELY send the ORIGINAL application form, one complete set of attachments and filing fee, by CERTIFIED MAIL to the NHDES Wetlands Bureau at the address indicated on page 1 of this application. (DO NOT HOLD FOR CONSERVATION COMMISSION SIGNATURE).

12. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

After-the-fact (ATF): work completed prior to receipt of this application by DES. Check box to indicate ATF.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland	126	<input type="checkbox"/> ATF	345	<input type="checkbox"/> ATF
Scrub-shrub wetland		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Emergent wetland		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Wet meadow		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Intermittent stream		<input type="checkbox"/> ATF	90	<input type="checkbox"/> ATF
Perennial Stream / River	672 / 84	<input type="checkbox"/> ATF	1132 / 139	<input type="checkbox"/> ATF
Lake / Pond	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Bank - Intermittent stream	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Bank - Perennial stream / River	1015 / 143	<input type="checkbox"/> ATF	881 / 107	<input type="checkbox"/> ATF
Bank - Lake / Pond	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Tidal water	/	<input type="checkbox"/> ATF	/	<input type="checkbox"/> ATF
Salt marsh		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Sand dune		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Prime wetland		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Prime wetland buffer		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Previously-developed upland in TBZ		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - Lake / Pond		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - River		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
Docking - Tidal Water		<input type="checkbox"/> ATF		<input type="checkbox"/> ATF
TOTAL	1813 / 227		2448 / 246	

13. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of \$ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) 4261 sq. ft. X \$0.20 = \$ 852.20

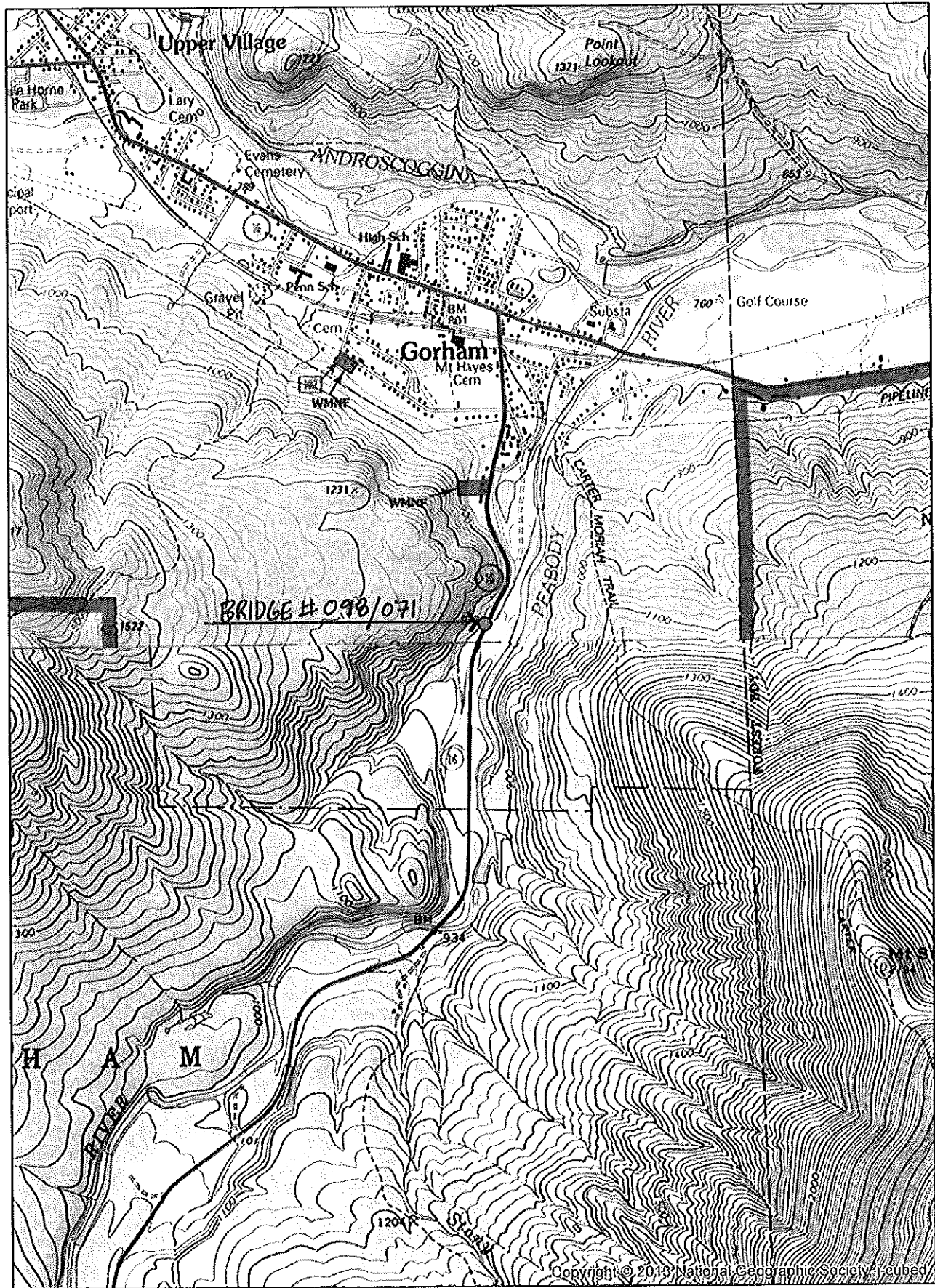
Temporary (seasonal) docking structure: sq. ft. X \$1.00 = \$

Permanent docking structure: sq. ft. X \$2.00 = \$

Projects proposing shoreline structures (including docks) add \$200 = \$

Total = \$

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 852.20



0 0.25 0.5 1 Miles

1:24,000



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LAND RESOURCES MANAGEMENT
WETLANDS BUREAU

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<http://des.nh.gov/organization/divisions/water/wetlands/index.htm>

Permit Application Status: <http://des.nh.gov/onestop/index.htm>



PERMIT APPLICATION – ATTACHMENT A
MINOR & MAJOR 20 QUESTIONS

Env-Wt 302.04 Requirements for Application Evaluation – For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The concrete deck is cracked and there are spalls and efflorescence at the construction joints. The substructure is cracked and spalling along the base of the abutments. The existing concrete invert is undermined and the structure outlet is perched approximately 1'-0". Riprap is required to protect the substructure widening, to stabilize the undermined invert, and to construct the fish weir. It is necessary to impact jurisdictional areas to provide for the repairs. The permanent impacts are for the structure widening, the riprap and fish weir. The temporary impacts are for temporary construction access and scaffolding. If the structure is not rehabilitated, it will eventually be load posted or closed.

2. That the alternative proposed by the applicant is the one with the least impact to the wetlands or surface waters on site.

Replace structure with a new structure in compliance with the NH Stream Crossing Guidelines: According to the NH Stream Crossing Guidelines, if a new structure were to be constructed at this location it would require a span of 17'-0". A structure of this size would cost approximately \$750,000. Spending this much money on a structure that could be adequately preserved for approximately \$250,000 would not be a practicable use of resources. There would also be significant wetland impacts if a structure of this size were installed due to the additional footprint and for construction.

Replace concrete deck and widen the substructure: This is the chosen alternative. Impacts for replacing the deck, repairing and widening the substructure are less than what would be required for a replacement structure. The riprap being installed is primarily to construct the fish weir, and is less than the riprap that would be required for a replacement structure. This is the most cost-effective and lowest impact solution to prolong the life of the structure.

In the February 17, 2016 Natural Resource Agency Coordination Meeting there were concerns raised by NHDES and NH Fish and Game with the perched outlet. Addressing the perched outlet was outside of the original project scope. It was stated that in place of paying mitigation for the structure widening, a fish weir could be installed to alleviate the downstream perch. A fish weir will now be incorporated in the scope of work to alleviate the downstream perch.

Since the meeting took place, it has been determined that the existing structure would be widened 6'-2" on the upstream side rather than 8'-4", and the existing structure would be widened 2'-6" on the downstream side rather than not widening it at all to the one side. This decreased the impact area.

3. The type and classification of the wetlands involved.

R2UB1: Riverine, lower perennial, unconsolidated bottom, cobble gravel

R4SB3: Riverine, intermittent, streambed, cobble gravel

PFO1E: Palustrine, forested, broad-leaved deciduous, seasonally flooded / saturated

Bank

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.
The Unnamed Brook flows into the Peabody River.
5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.
The Unnamed Brook and surrounding wetlands have not been identified as a rare surface water of the state.
6. The surface area of the wetlands that will be impacted.
1804ft² Riverine, lower perennial (1132ft² temporary, 672ft² permanent) 90ft² Riverine, intermittent (90ft² temporary, 0ft² permanent) 471ft² Palustrine (345ft² temporary, 126ft² permanent) 1896ft² Bank (881ft² temporary, 1015ft² permanent)
7. The impact on plants, fish, and wildlife, but not limited to: a. Rare, special concern species; b. State and federally listed threatened and endangered species; c. Species at the extremities of their ranges; d. Migratory fish and wildlife; e. Exemplary natural communities identified by the DRED-NHB; and f. Vernal pools.
a) No rare or special concern species were identified within the proposed project area. b) There were no State or Federally listed threatened or endangered species identified within the project limits. However the IPaC did list the Northern Long Eared Bat and the Canada Lynx. As for the Northern Long-eared Bat (NLEB), tree clearing is being coordinated with Rebecca Martin of the Bureau of Environment and Andrew Hall of the Bureau of Bridge Maintenance. If any signs of bat utilization are observed, work will not commence until coordination with USFWS and NHDOT Bureau of Environment has been completed. As for Canada Lynx the proposed work is not anticipated to impact any suitable habitat for this species. c) There are no species known to be at the extremities of their ranges located in the project area or the surrounding area. d) Migratory fish and wildlife will be protected under the direction of NH Fish and Game. By installing a fish weir and addressing the perched outlet there will be a benefit to migratory fish and wildlife. e) The Department has coordinated with DRED and the results of the NHB review revealed no records in this area. f) There were no vernal pools identified and/or delineated in the project area.
8. The impact of the proposed project on public commerce, navigation and recreation.
During construction, access to the nearby residents and/or commercial businesses will be maintained at all times. Access will be maintained by alternating traffic with a one lane closure. The unnamed brook is non-navigable waters which makes it non-conducive to boaters. There are no recreational areas that have been identified in this area except for the possibility for fishing. During construction fishing activities from the banks of the river will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.
9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.
The project will not significantly interfere with the aesthetic interests of the general public. The proposed improvements will be more pleasing to the eye than the structure in poor condition.
10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.
The project will not interfere with or obstruct public rights of passage or access. During construction at least one

lane of alternating traffic will be maintained at all times. This will ensure access to all nearby businesses and residential homes in this area. Upon completion of this project the bridge will be reopened to two way traffic.
11. The impact upon the abutting pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to riprap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.
The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel on the road. The riprap that is being installed will help prevent a washout of the structure which will better protect abutting properties. The project as proposed will not alter the chance of flooding on abutting properties.
12. The benefit of a project to the health, safety, and well-being of the general public.
The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc, for the general public.
13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and difference in the quality of water entering and exiting the site.
The surface water currently runs off the bridge at the curb lines, to the wingwalls, and then off the structure. Upon completion of the project surface will drain water in the same manner. This will have no adverse effects on the quality or quantity of surface and ground water. Best Management Practices will be used to prevent any adverse effect to water quality during construction.
14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.
Flooding: The project as proposed will not increase the potential of flooding. The hydraulic opening of the proposed structure will be the same as the existing structure. The proposed structure has been checked at a variety of flows and the structure will pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project. Erosion: The riprap placed at the substructure will help prevent erosion and preserve the natural alignment and gradient of the stream channel. Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project.
15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.
Surface waters will not be reflected or redirected as a result of this project. The unnamed brook does not have enough surface water for wave energy to be an issue.
16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alternations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage ownership of that wetland and the percentage of that ownership that would be impacted.
The work consists of the repair of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.
17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.
The value of the wetland as a habitat for living organisms will be improved as a result of the proposed fish weir. The project will be constructed outside the fish spawning season. A function of the unnamed brook is to carry

water from a higher elevation to a lower elevation. This project will not interfere with that function.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

This project is not located in or near any Natural Landmarks listed on the National Register.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

There are no areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, or national lakeshores that will be impacted as a result of this project.

20. The degree to which a project redirects water from one watershed to another.

The project as proposed will not redirect water from one watershed to another.

Additional comments

Gorham 098/071, non-federal, 40826

Tony Weatherbee provided an overview of the project. The scope of the project is to rehabilitate the bridge that carries Rte. 16 over Brook (098/071). Existing structure is a concrete slab bridge with a 14'-0" span that is 32'-9" wide. Proposed work consists of the following: place sandbag cofferdams, install toe walls, construct upstream wingwalls, replace deck and place riprap. The structure will be widened on the upstream side 8'-4".

Lori Sommer asked if the invert was perched and Tony said yes. Carol Henderson asked if anything was planned to remove the perch. Tony said that working downstream of the structure was outside of the scope of the project. Lori mentioned how the Agenda Item Request Form said downstream wingwalls and Tony said that the scope of the project has changed since the form was put together and it is the upstream side that will be widened.

Gino Infascelli asked if there would be new riprap installed beyond the existing riprap. Tony described where the existing riprap was and where the new riprap would be placed. Tony added that the exact amount of linear feet of riprap required will be verified after a field visit.

Gino asked if a downstream fish weir could be installed to fix the perched outlet. Gino said that this could be installed in place of paying mitigation for riprap and coordination should take place with Fish and Game.

Lori Sommer said that there is no mitigation required if a fish weir is installed to fix the perched outlet condition. Carol Henderson noted that there was no NHB hit at this location.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Hydraulic Data

Drainage Area – 1.0 sq mi

Q 100 = 231 cfs

At the 100 year flood, the proposed structure is anticipated to pass all flow exiting the structure.

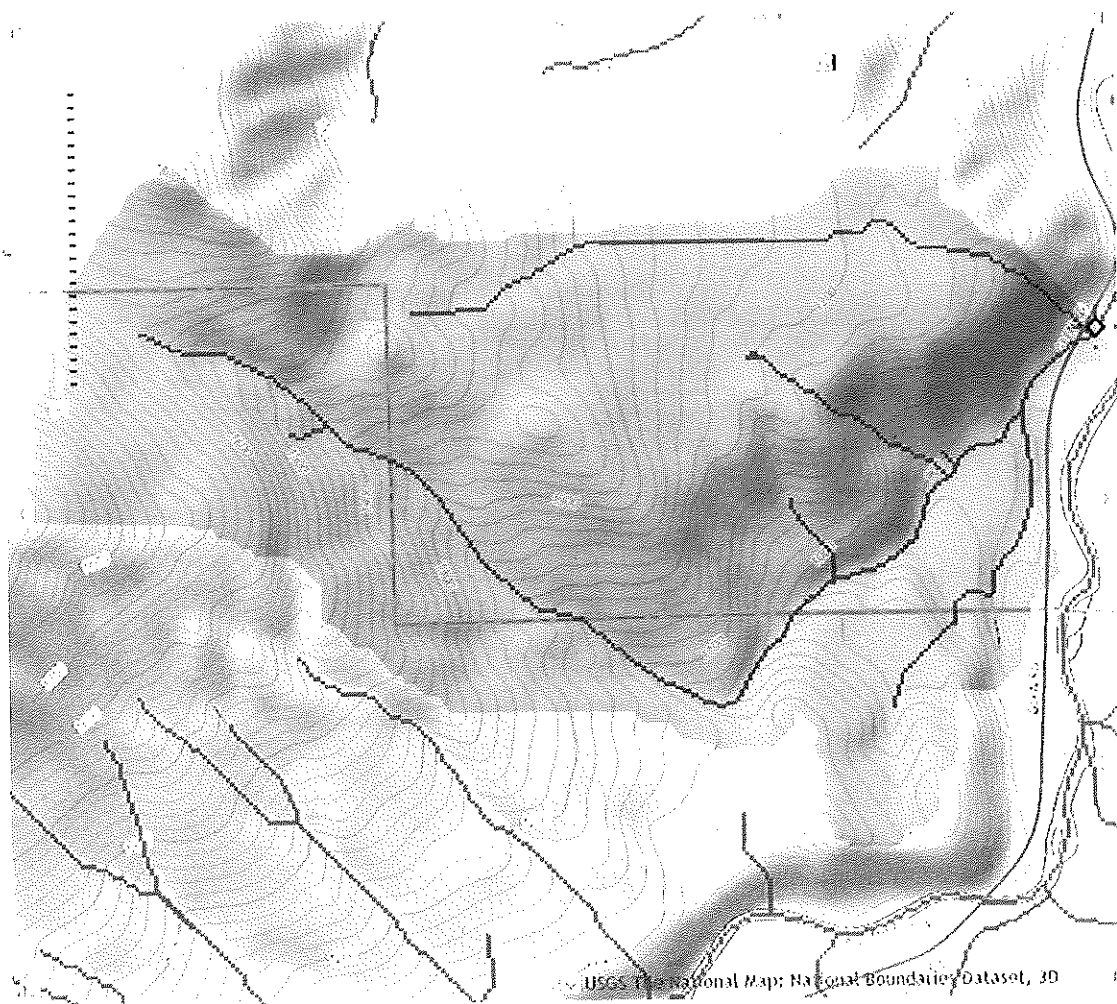
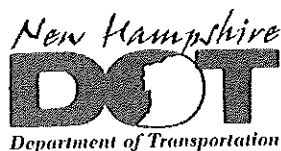


Figure 9: Watershed



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE MAINTENANCE
7 Hazen Drive, PO Box 483, Concord, NH 03302-0095
Phone: (603) 271-3667 Fax: (603) 271-1588



WETLANDS PERMIT APPLICATION – ATTACHMENT C **Stream Crossing Requirements & Information**

Env-Wt 904.09(a) – If the applicant believes that installing the structure specified in the applicable rule is not practicable then the applicant may propose an alternative design in accordance with this section.

1. Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as "available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes") (question 2, Attachment A, Minor and Major 20 Questions);

The unnamed brook has a drainage area of 1.0 square miles which qualifies this stream as a Tier 3 Crossing. The required span based on the NH Stream Crossing Guidelines for a new crossing is 17'-0". A structure of this size would cost approximately \$750,000. Spending this much money on a structure that could be adequately preserved for approximately \$250,000 would not be a practicable use of resources. There would be a significant increase in wetland impacts if a structure of this size were installed due to the additional footprint and for construction.

2. Please explain how the proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the maximum extent practicable. Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed...

...In accordance with the NH Stream Crossing Guidelines:

The NH Stream Crossing Guidelines do not mention maintenance to a structure in a Tier 3 watershed.

The proposed structure will match the existing slope and alignment.

The bottom of the existing structure is currently a concrete invert and it will not be changed as a result of this project.

Wildlife passage will be improved as a result of the fish weir.

The proposed structure will maintain the flow depths found in the existing structure.

The proposed structure is expected to be able to pass the 100 year flood event.

...With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing:

Water depths and velocities within the crossing at a variety of flows will be comparable to the existing depths and velocities. These flows are comparable to those found in the natural channel upstream and downstream of the stream crossing.

...To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage:

It is not possible to provide vegetated banks on both sides of the watercourse below the roadway, regardless of the type of structure installed. Wildlife passage will not be changed as a result of this project.

...To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the function of the natural floodplain (*questions 14 and 15, Attachment A, Minor and Major 20 Questions*);

The project as proposed will not increase the potential of flooding. The hydraulic opening of the proposed structure will be the same as the existing structure. The proposed structure has been checked at a variety of flows and the structure will pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project.

...To accommodate the 100-year frequency flood and to ensure that there is no increase in flood stages on abutting properties (*questions 11 and 14, Attachment A, Minor and Major 20 Questions*):

**The project as proposed will not change the potential of flooding on abutting properties.
The proposed bridge is expected to pass the 100 year flood event.**

...To simulate a natural stream channel:

The existing concrete invert bottom will not be changed as a result of this project.

...So as not to alter sediment transport competence (*question 14, Attachment A, Minor and Major 20 Questions*):

Nothing that will be a barrier to sediment transport will be installed in this project.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

(a) Not be a barrier to sediment transport (*question 14, Attachment A, Minor and Major 20 Questions*);

Nothing that will be a barrier to sediment transport will be installed in this project.

(b) Prevent the restriction of high flows and maintain existing low flows (*question 14, Attachment A, Minor and Major 20 Questions*);

The project as proposed will not increase the potential of flooding. The hydraulic opening of the proposed structure will be the same as the existing structure. The proposed structure has been checked at a variety of flows and the structure will pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction (*question 7, Attachment A, Minor and Major 20 Questions*);

The movement of aquatic life indigenous to the water body will not be obstructed or otherwise substantially disrupted beyond the actual duration of construction. The proposed fish weir will improve the movement of aquatic life indigenous to the water body beyond the duration of construction.

(d) Not cause an increase in the frequency of flooding or overtopping of banks (*question 14, Attachment A, Minor and Major 20 Questions*);

The project as proposed will not increase the potential of flooding. The hydraulic opening of the proposed structure will be the same as the existing structure. The proposed structure has been checked at a variety of flows and the structure will pass the 100 year storm event. High flows will not be restricted, and low flows will be maintained as a result of this project.

(e) Preserve watercourse connectivity where it currently exists (*question 15, Attachment A, Minor and Major 20 Questions*);

Connectivity will be improved due to the proposed fish weir.

(f) Restore watercourse connectivity where...
...connectivity previously was disrupted as a result of human activity(ies) (<i>question 15, Attachment A, Minor and Major 20 Questions</i>);
Connectivity will be improved due to the proposed fish weir.
...restoration of connectivity will benefit aquatic life upstream or downstream of the crossing (<i>question 15, Attachment A, Minor and Major 20 Questions</i>);
Aquatic life upstream and downstream will be improved due to the proposed fish weir.
(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing (<i>question 14, Attachment A, Minor and Major 20 Questions</i>);
Erosion: The riprap placed at the substructure will help prevent erosion and preserve the natural alignment and gradient of the stream channel. Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project.
(h) Not cause water quality degradation (<i>question 13, Attachment A, Minor and Major 20 Questions</i>).
The project as proposed will not impact the quantity or quality of surface and/or groundwater at this site. Best Management Practices will be used to prevent any adverse effect to water quality during construction.

MITIGATION REPORT

At the February 17, 2016 Natural Resources Agency Meeting it was determined that no mitigation would be required if a fish weir was installed.



New Hampshire Natural Heritage Bureau

To: Tony Weatherbee
7 Hazen Drive
Concord, NH 03302

Date: 1/29/2016

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 1/29/2016
NHB File ID: NHB16-0288

Applicant: Tony Weatherbee

Location: Tax Map(s)/Lot(s):
Gorham

Project Description: Rehabilitate bridge that carries Rte. 16 over Brook (098/071). Existing structure is a concrete slab bridge with a 14'-0" span that is 32'-9" wide. Proposed work consists of the following: place sandbag cofferdams, install toe walls, construct downstream wingwalls, replace deck and place riprap.

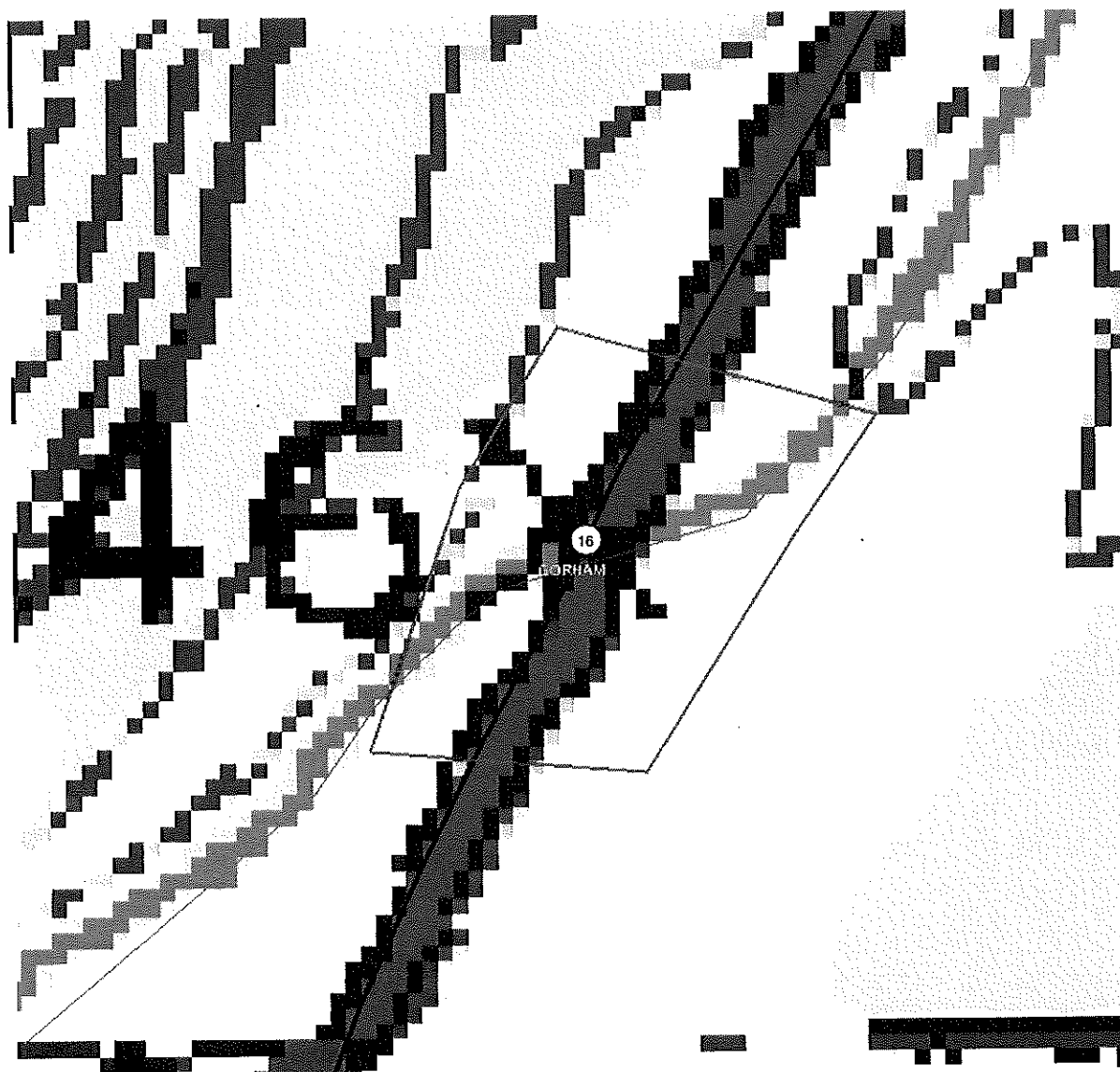
The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 1/28/2017.



MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB16-0288





United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland



Consultation Code: 05E1NE00-2016-SLI-1155

March 25, 2016

Event Code: 05E1NE00-2016-E-01673

Project Name: Gorham 098/071

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Gorham 098/071

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
(603) 223-2541
<http://www.fws.gov/newengland>

Consultation Code: 05E1NE00-2016-SLI-1155

Event Code: 05E1NE00-2016-E-01673

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Name: Gorham 098/071

Project Description: Bridge that carries NH Rte. 16 over an unnamed brook. The concrete deck will be replaced, the roadway will be widened and a fish weir will be constructed.

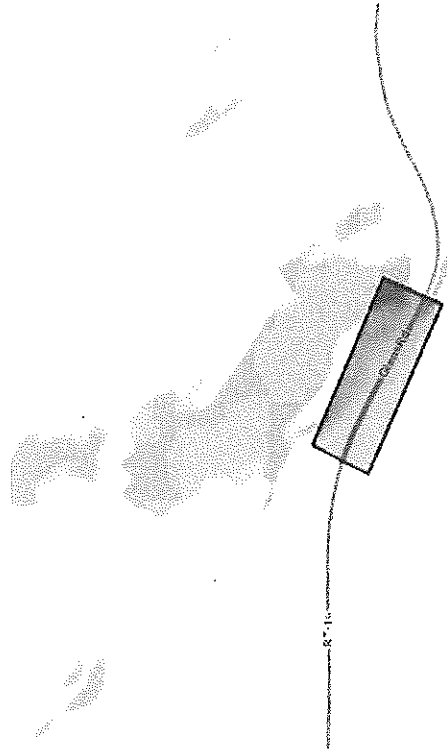
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Gorham 098/071

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-71.17493748664856 44.37505919865812, -71.17387533187866 44.37465275470991, -71.1724054813385 44.376930338182106, -71.17353200912476 44.377283087295524, -71.17493748664856 44.37505919865812)))

Project Counties: Coos, NH



United States Department of Interior
Fish and Wildlife Service

Project name: Gorham 098/071

Endangered Species Act Species List

There are a total of 2 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Canada Lynx (<i>Lynx canadensis</i>) Population: Contiguous U.S. DPS	Threatened	Final designated	
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Gorham 098/071

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

IPaC Official Species List Consultation Code: 05E1NE00-2016-SLI-1155

Information to Determine 4(d) Rule Compliance:

YES NO

1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 or yes to question #2 and no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant³ (Name, Email, Phone No.): Anthony Weatherbee,
aweatherbee@dot.state.nh.us, (603) 271-3667

Project Name: Gorham 098/071

Project Location (include coordinates if known): Rte. 16 over Unnamed Brook

Basic Project Description (provide narrative below or attach additional information): Rehabilitate the bridge that carries Rte. 16 over an unnamed brook (098/071). Existing structure is a concrete slab bridge that has a 14' span and 32'-9" deck width. The existing deck is in deteriorated condition. Proposed work consists of the following: install temporary scaffolding and sandbags, widen the existing substructure, replace the deck, install fish weir and place riprap.

¹ <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	< 1	
If known, estimated acres ⁵ of forest conversion from April 1 to October 31	< 1	
If known, estimated acres of forest conversion from June 1 to July 31 ⁶	0	
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: Anthony Weatherbee

Date Submitted: 7/19/16

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.

Wetland Application – NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the enclosed Standard Dredge and Fill Application for potential impacts to historic properties.

Project: Rehabilitate the c.1900/rebuilt 1976 concrete box bridge that carries Rte. 16 over an unnamed brook (098/071). Existing structure is a concrete slab bridge that has a 14' span and 32'-9" deck width. The existing deck and substructure are in deteriorated condition. Proposed work consists of the following: install temporary scaffolding and sandbags, widen and repair the existing substructure, replace the deck, install fish weir and place riprap.

Above Ground Review

Known/approximate age of structure: 1976

☒ No Potential to Cause Effect/No Concerns

Concrete box bridge was built in 1976 and is less than 50 years old.

☐ Concerns:

Below Ground Review

Recorded Archaeological site: ☐ Yes ☒ No

Nearest Recorded Archaeological Site Name & Number: 27-CO-0043 Peabody Confluence Site

☒ Pre-Contact ☐ Post-Contact

Distance from Project Area: 4225 ft (1.29 km) northeast of project area

☒ No Potential to Cause Effect/No Concerns

As impacts are minimal, confined to area of bridge, and to other actions including fish weir and riprap placement, we have no concerns.

☐ Concerns:

Reviewed by:

Shirley Charles

8/25/2016

NHDOT Cultural Resources Staff

Date:



**US Army Corps
of Engineers**®
New England District

**New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		X
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org , specifically the book <u>Natural Community Systems of New Hampshire</u> .		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	313254 [±]	
2.7 What is the size of the proposed impervious surface area?	353061 [±]	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	50%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		X
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: <ul style="list-style-type: none"> • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 		X

3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
5. Historic/Archaeological Resources		
For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP**		N/A

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law..



Figure 1: Rte. 16 over structure looking north towards Gorham (12/2015).



Figure 2: Rte. 16 over structure looking south towards Martins Location (12/2015).



Figure 3: Upstream, southwest wingwall where the structure will be widened 6'-2"±(12/2015).



Figure 4: Upstream, northwest wingwall where the structure will be widened 6'-2"±(12/2015).

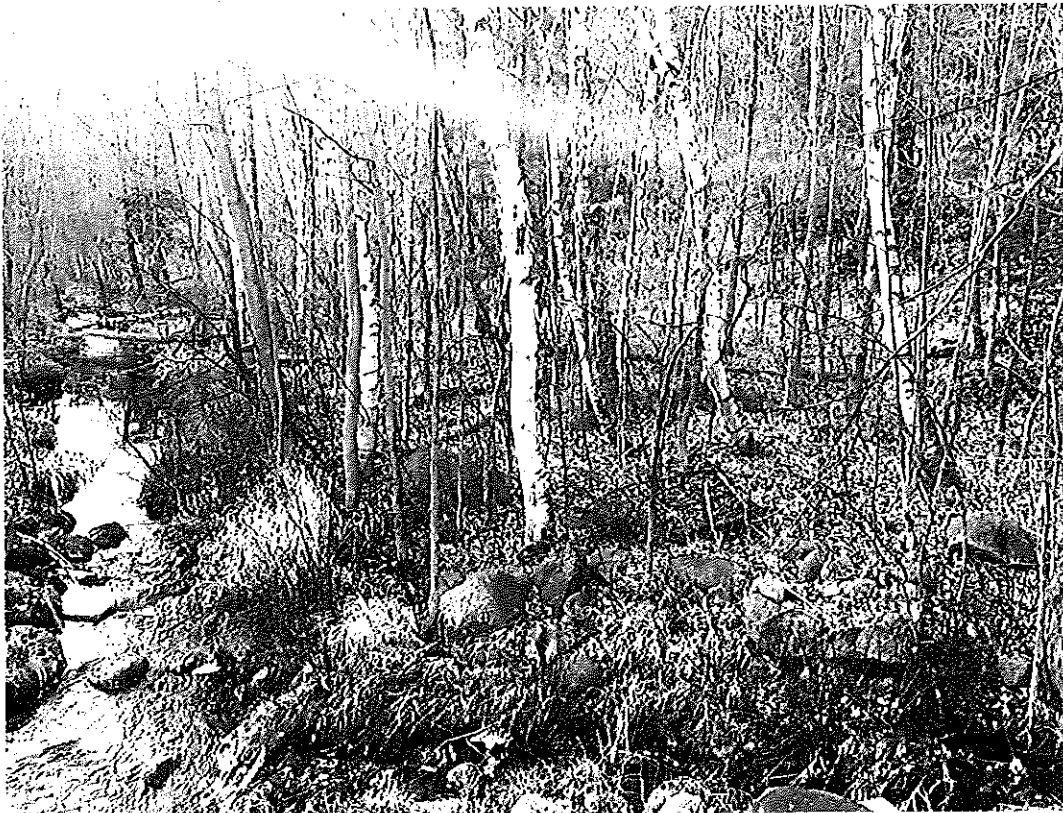


Figure 5: Wetland on upstream side (12/2015).



Figure 6: Downstream side where fish weir will be constructed (12/2015).



Figure 7: Downstream, southeast wingwall where structure will be widened 2'-6"± (12/2015).



Figure 8: Downstream elevation and perched outlet (12/2015).

CONSTRUCTION SEQUENCE

1. Sandbag cofferdams will be placed in the river and the work zone will be dewatered. All flow will be maintained through natural sections of channel or a diversion pipe.
2. Substructure on upstream side will be widened and repaired, and riprap will be installed.
3. Temporary scaffolding will be placed in the brook.
4. Phase 1 of the concrete deck will be replaced.
5. Substructure on the downstream side will be widened and repaired.
6. Temporary scaffolding will be placed in the brook.
7. Phase 2 of the concrete deck will be replaced.
8. Rock fish weir will be installed.
9. All dewatering devices and temporary scaffolding will be removed and the site will be restored to its original quality.

Note:

Project will use and maintain DES Best Management Practices at all stages of construction.

PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

The rehabilitation of the bridge that carries NH Rte. 16 over an unnamed brook proposes the placement of stone fill within areas under the jurisdiction of the NH Wetlands Bureau and the US Army Corps of Engineers. The stone fill will be located in the channel and along the bank of the proposed structure as shown on the plans.

Pursuant to PART Wt 404 Criteria for Shoreline Stabilization, the following addresses each codified section of the Administrative Rules:

Wt 404.01 Least Intrusive Method

The riverbank stabilization treatment proposed is the least intrusive construction method necessary to minimize the disruption to the existing shorelines. The stone treatment can be reasonably constructed utilizing general highway construction methods.

Wt 404.02 Diversion of Water

Proposed roadway drainage will allow storm water run-off to be diverted so that it will flow over vegetated areas, insofar as possible, prior to entering the unnamed brook. This will minimize erosion of the shoreline.

Wt 404.03 Vegetative Stabilization

Natural vegetation will be left undisturbed to the maximum extent possible. The only locations being disturbed are the impacted areas on the plan for construction. All newly developed slopes and disturbed areas will have humus and seed applied for turf establishment, which will help stabilize the project area.

Wt 404.04 Rip-Rap

- (a) Stone fill, as proposed, is shown on the attached plans to protect the channel and bank as necessary. Stable embankments are necessary to maintain the structural integrity of the bridge during all flow conditions.
- (b) (1-5) The minimum and maximum stone size, the gradation, cross sections of the stone fill, proposed location, and other details have been provided on the attached plans. Bedding for the stone fill will consist of natural ground excavated to the proposed underside of the stone fill.
- (b) (6) Enclosed are plan sheets to sufficiently indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline.
- (b) (7) Stone fill is recommended for the limits shown on the attached plans to protect the banks from erosion during flood flows, from scour during all flows, and slopes greater than 2:1 have difficulty supporting vegetation.
- (c) This project is not located adjacent to a great pond or water body where the state holds fee simple ownership.
- (d) Stone fill is proposed to extend down to and adequately keyed into the channel bottom to prevent possible undermining of the slope.
- (e) The enclosed plan has been stamped by a professional engineer.